| DOOSAN **Document Transmittal**<br>Upper Trishuli-1 HEP (216MW) | Date<br>2022-02-28 | DT No.:<br>UT1-HEP-DHI-PC-D-0002 | SHEET<br>1 OF 1 |
|---|---|---|---|
| DOOSAN NEPAL<br>BRANCH OFFICE | Address & Contact No. :<br>Four Square Building, Naxal,<br>Kathmandu, Nepal (P.O Box : 1387)<br>+ 977 1 692 3014 | Project No.<br>H20002 | DOCUMENT DISPATCHED BY<br>Courier Service ☐<br>Messenger ☐<br>Post-Air Freight ☐<br>Document System or E-mail ■<br>By hand ■ |
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| SUBJECT | Review Note RN-0060_Outline of Diversion Tunnel Intake Tower | | |

| S. N. | REVIEW NOTE NO. | REVIEW STATUS | DWG. / DOC. NO. | REV. | DWG. TITLE / DOC. DESCRIPTION | REMARK |
|---|---|---|---|---|---|---|
| 1 | RN-0060 | FI | UT1-C-010-CVL-DG-42008 | 0A | Outline of Diversion Tunnel Intake Tower | 4 SHEET |
| 2 | | | | | | |
| 3 | | | | | | |
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| 12 | | | | | | |

Received by :

Date :

Legend of Review Status
A : APPROVED
AN : APPROVED AS NOTED
RR : RETURN FOR RESUBMISSION
FI : FOR INFORMATION

DHI STAMP

Doosan Heavy Industries & Construction Co.,Ltd. ★ DOOSAN ★ Branch Office Nepal

Issued by DHI

**Youngsoo Son**

Project Manager

Email: youngsoo.son@doosan.com
Doosan Heavy Industries & Construction Co., Ltd.

Discipline : Civil

# UPPER TRISHULI-1 HEP (216MW)

| | |
|---|---|
| **Client** | **Nepal Water and Energy Development Company Private Limited** |
| **Owner's Engineer** | **Tractebel Engineering GmbH / Jade Consult** |

## REVIEW NOTE

| | | | |
|---|---|---|---|
| Contractor | **Doosan Heavy Industries & Construction Co., Ltd.** | | |
| Title of the Document | Outline of Diversion Tunnel Intake Tower | | |
| Document No. | UT1-C-010-CVL-DG-42008 | Revision | 0A |
| Date of Documents | 10.02.2022 | Received Date | 21.02.2022 |
| Transmittal Form No. | UT1-HEP-DHI-D-0159 | | |
| Previous Review Date/Status | N/A | Prev. Review Note No. | N/A |
| Review Note No. | **RN-0060** | **Present Review Date** | **27.02.2022** |
| | | **Present Review Status** | **FI** |

A: Approved AN: Approved as Noted RR: Returned for Resubmission FI: For Information, only.

**General Comments**

As the document under review is part of the Design Optimization Proposal process, it is considered for information only.

This review note RN-0060 only comments the document ref.: *UT1-C-010-CVL-DG-42008_0A* in technical/ design aspects.

OE´s comments are indicated in red in the Annex.

**ANNEX:**

**UT1-C-010-CVL-DG-42008_0A_comments**

DISCLAIMER

Any approval will not release the Contractor from any of his obligations under the Contract.

Sebastian Beck, Chief Design Engineer

PLATFORM NOT TO BE SUBMERGED !!

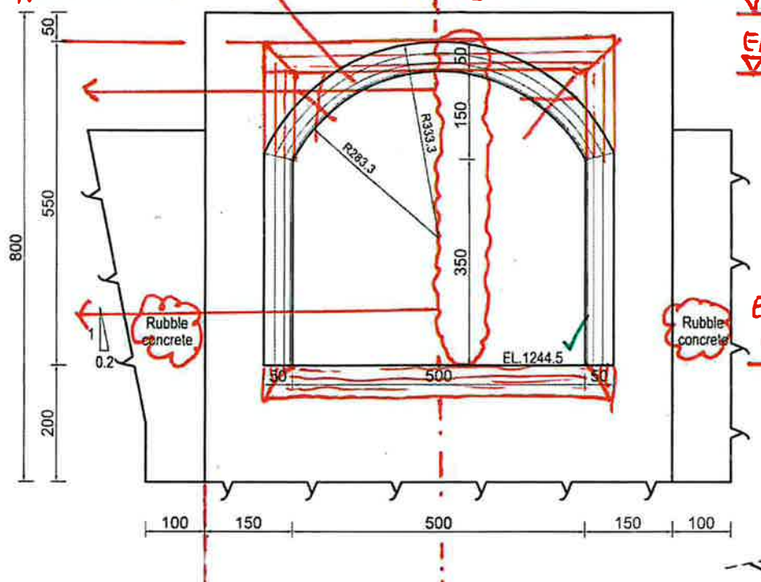
MAX. WATER LEVEL

• ACCESS TO PLATFORM?

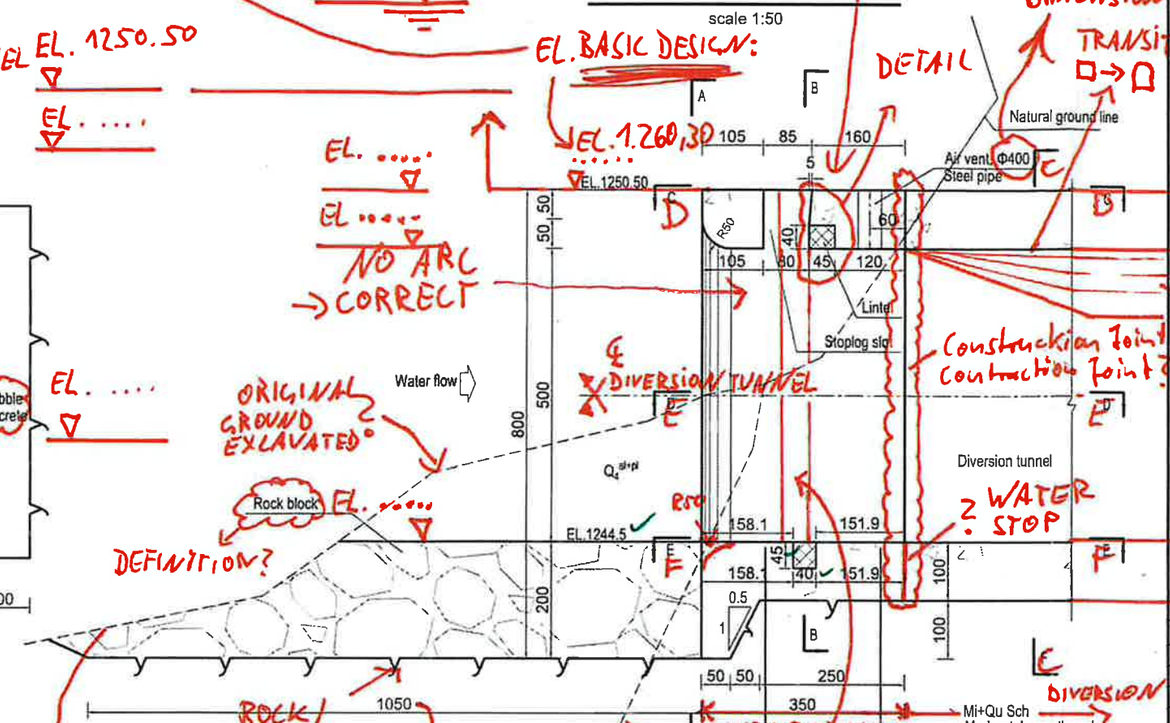
Platform: Dimension? allow to set stoplogs & PLATFORM FOR MOBILE CRANE? DIMENSION?

NO "ARC-CROSSSECTION" AT BEGINNING! SEE LONG SECTION → TRANSITION AFTE GATE!

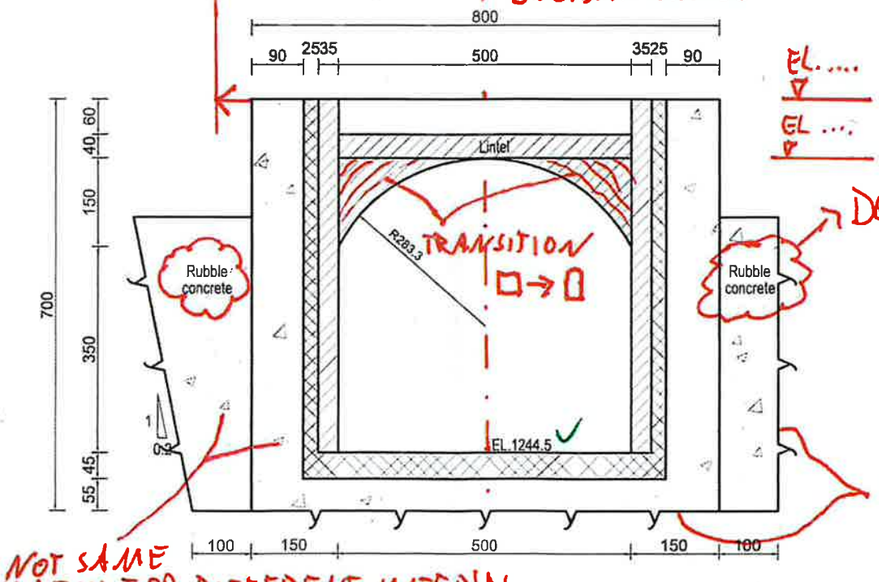
## SECTION A-A
scale 1:50




## LONGITUDINAL SECTION
scale 1:50




## SECTION B-B
scale 1:50




SCALE:
1:50 0 0.5 1 1.5 2 2.5m
1:100 0 1 2 3 4 5m

LEGEND:

| | |
|---|---|
| PRIMARY CONCRETE SURFACE VIEW | SECONDARY CONCRETE SURFACE VIEW |
| PRIMARY CONCRETE SECTIONAL VIEW | SECONDARY CONCRETE SECTIONAL VIEW |

SOLID FOR SURFACE VIEW

?? RUBBLE CONCRETE

RIVER DIVERSION
INTAKE STRUCTURE
SECTIONS AND VIEWS

SITE COMPONENT
STRUCTURE
TYPE

### NOTE

1. This set of drawings are the outline of diversion tunnel intake tower.
2. All dimensions are in centimeters, and coordinates, chainages & elevations are in meters.
3. Symbol description:
   D denotes deformed bar, yield strength of the deformed bar is 500MPa;
4. Strength specification of shotcrete:
   Cylinder specified compressive strength 21MPa at 28 days.
5. The primary concrete grade is class E: cylinder specified compressive strength is 24MPa at 28days. The secondary concrete grade is class F: cylinder specified compressive strength is 35MPa at 28days.

STRUCTURAL ANALYSIS?

DESIGN OF: UT1_C_DFDR_011 TO BE CONSIDERED _012

### REFERENCE DRAWINGS

| | |
|---|---|
| UT1-C-010-CVL-DG-42001 | ARRANGEMENT DRAWING OF DIVERSION TUNNEL |

UTA-H-010-MEC-DG-01004
REINFORCEMENT DRAWING
GENERAL DESIGN DRAWING
SYMBOL AND LEGEND
OUTLINE DRAWINGS DIVERSION TUNNEL

**FOR APPROVAL**

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FIRST SUBMISSION

| REV. NO. | DATE | DESCRIPTION | DRAWN | CHKD. | APPD. |
|---|---|---|---|---|---|
| A | 10.FEB.2022 | FOR APPROVAL | SHAO H.J. | HAN Y.H. | WANG C.G. LUO L. |

PROJECT TITLE
Upper Trishuli-1 HEP (216MW)

OWNER
NWEDC

OWNER'S ENGINEER
TRACTEBEL ENGIE

CONTRACTOR
DOOSAN Doosan Heavy Industries & Construction

DRAWING TITLE → Codification
OUTLINE OF DIVERSION TUNNEL INTAKE TOWER

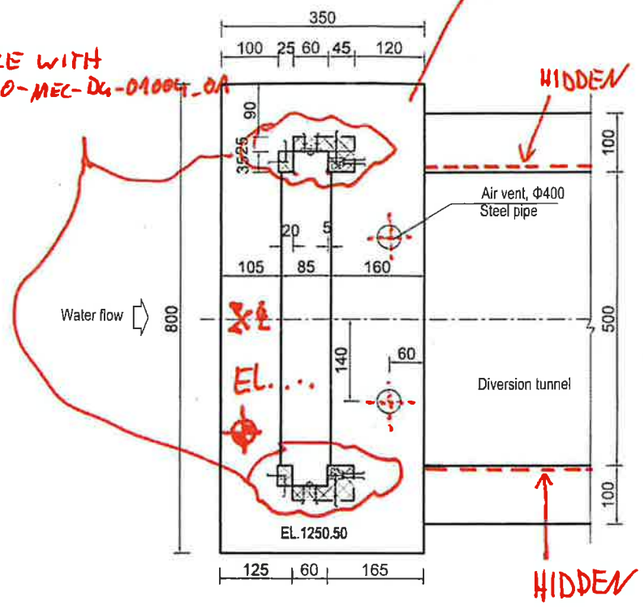
| BLOCK | DRAWING NUMBER | SHEET NO. | REV. NO. |
|---|---|---|---|
| A | UT1-C-010-CVL-DG-42008-1 | 1 OF 3 | 0A |

A1 (594 x 841 MM)

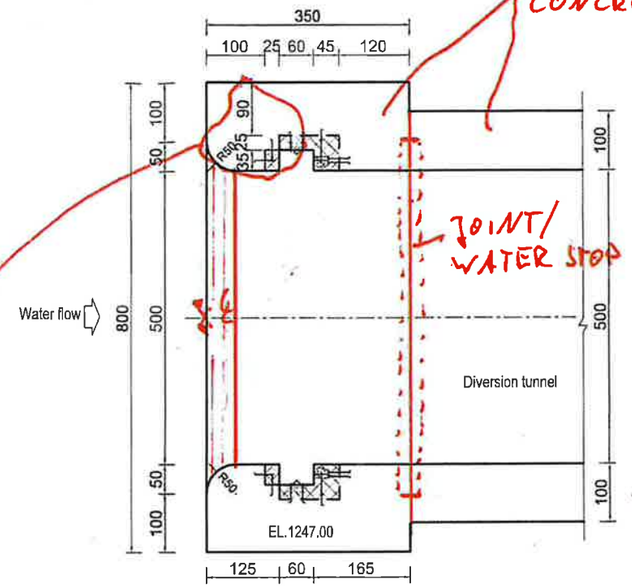
? FA

NOT IN CODIFICATION

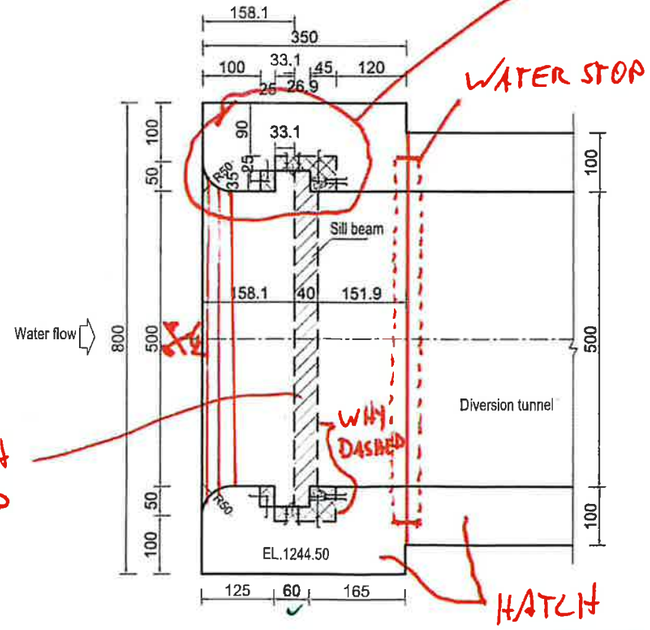
## SECTION C-C
scale 1:50



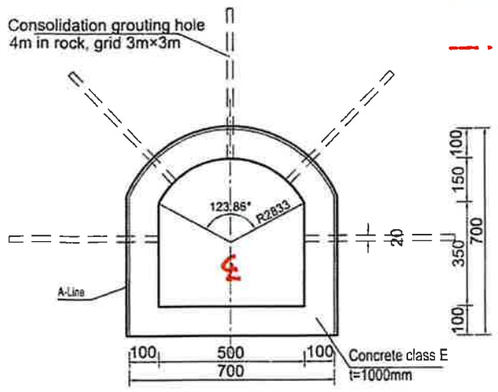

## SECTION D-D
scale 1:50




## SECTION E-E
scale 1:50




## SECTION F-F
scale 1:100




SCALE:
1:50 0 0.5 1 1.5 2 2.5m

## NOTE

1. This set of drawings are the outline of diversion tunnel intake tower.
2. All dimensions are in centimeters, and coordinates, chainages & elevations are in meters.
3. Symbol description:
   D denotes deformed bar, yield strength of the deformed bar is 500MPa;
4. Strength specification of shotcrete:
   Cylinder specified compressive strength 21MPa at 28 days.
5. The primary concrete grade is class E: cylinder specified compressive strength is 24MPa at 28days. The secondary concrete grade is class F: cylinder specified compressive strength is 35MPa at 28days.
6. The embedded part is for illustration only, the actual location and size refer to the separated mechanical part drawings.

## REFERENCE DRAWINGS

| | |
|---|---|
| UT1-C-010-CVL-DG-42001 | ARRANGEMENT DRAWING OF DIVERSION TUNNEL |

## SYMBOL AND LEGEND

**FOR APPROVAL**

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|---|---|---|---|---|---|
| A | 10.FEB.2022 | FOR APPROVAL | SHAO H.J. | HAN Y.H. | WANG C.G. LUO L. |

PROJECT TITLE
Upper Trishuli-1 HEP (216MW)

OWNER
NWEDC

OWNER'S ENGINEER
TRACTEBEL ENGINEERING

CONTRACTOR
DOOSAN Doosan Heavy Industries & Construction

DRAWING TITLE
OUTLINE OF DIVERSION TUNNEL INTAKE TOWER

| INDEX | DRAWING NUMBER | SHEET NO. | REV. NO. |
|---|---|---|---|
| A | UT1-C-010-CVL-DG-42008-2 | 2 OF 3 | A |

A1 (594 x 841 MM)

EXAMPLE LINE TYPES:
- CONCRETE OUTLINE
- JOINT
- 1st HIDDEN LINE
- 2nd HIDDEN LINE
- HIDDEN BEHIND (REAR)

DIMENSION OF PLATFORM → MOBILE CRANE TO SET STOPLOG ?

COMPARE WITH UT1-N-010-MEC-DG-01006_0A

HIDDEN

HIDDEN

HATCH 1st STAGE CONCRETE

JOINT/ WATER STOP

COMMENTS OF SHEET 1 ARE APPLICABLE

DETAIL DRAWING SEE E.G. UT1-N-010-MEC-DG-01004

WATER STOP

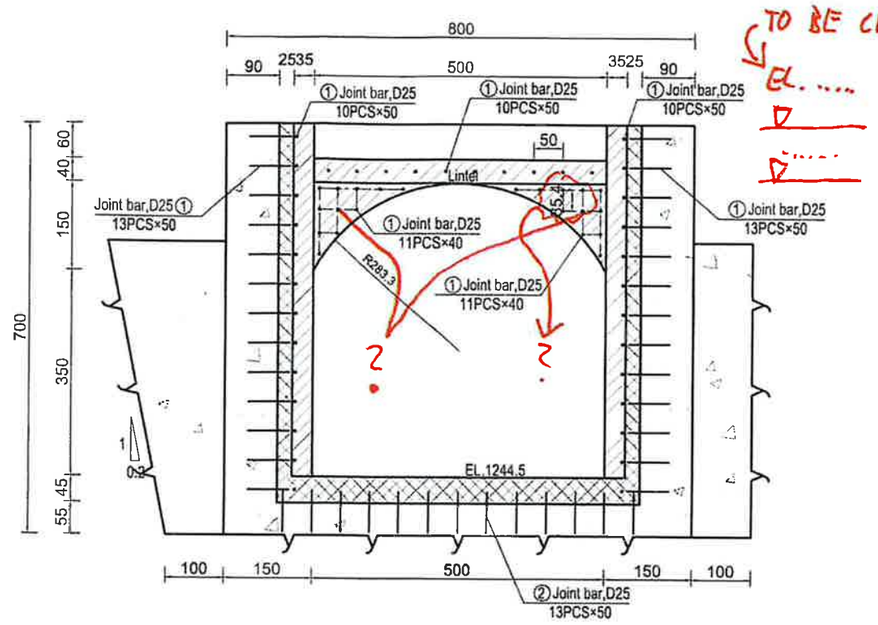
HATCH SOLID

WHY DASHED

HATCH 1st STAGE CONCRETE

## JOINT BAR OF SECTION B-B

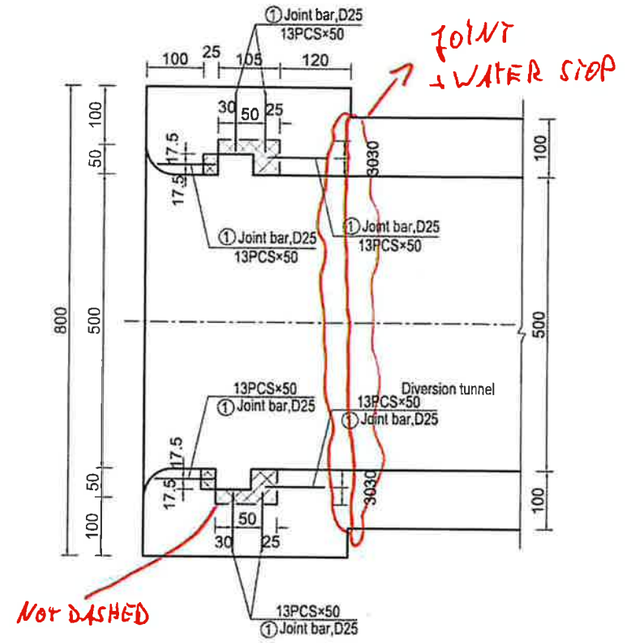
scale 1:50




TO BE CHECKED
EL. ....

## JOINT BAR OF SECTION D-D

scale 1:50

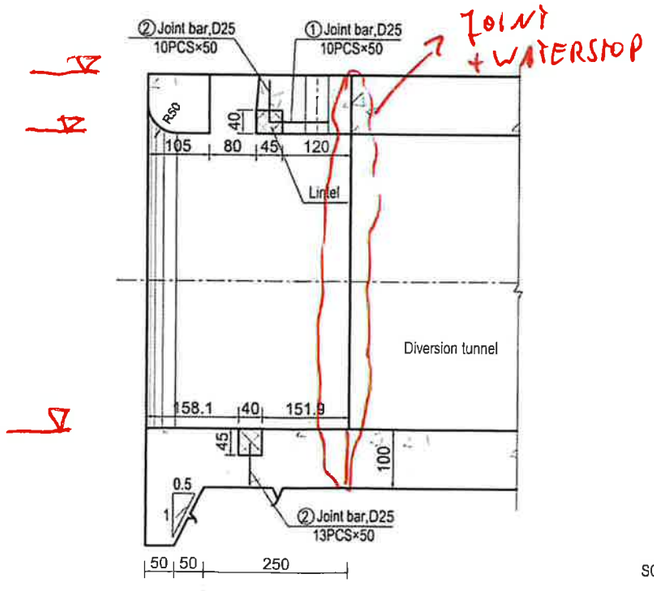



JOINT + WATER STOP

NOT DASHED

## JOINT BAR OF LINTEL AND SILL BEAM

scale 1:50




SCALE: 1:50 0 0.5 1 1.5 2 2.5m

- PLACING OF JOINT BARS
- PLACING OF 1st STAGE EMBEDDET PARTS
- RE-BARS
- → VERIFICATION OF MAX. CONCRETE AGGREGATE SIZE?
- → COMPACTION OF FRESH CONCRET? VIBRATION/ SELF COMPACTION

## SECONDARY CONCRETE JOINT BAR

| | NO. | Diameter (mm) | Type (cm) | Each Length (cm) | PCS | Total Length (m) | Remark |
|---|---|---|---|---|---|---|---|
| Joint bar | ① | D25 | 80 (Primary concrete) \| 20 (Second concrete) | 100 | 136 | 136 | SPACING AS SPECFIED |
| | ② | D25 | 50 (Primary concrete) \| 20 (Second concrete) | 70 | 23 | 16.1 | SPACING AS SPECFIED |

### NOTE

1. This drawing is layout of secondary concrete joint bar of diversion tunnel intake tower.
2. All dimensions are in centimeters, and coordinates, chainages & elevations are in meters.
3. Symbol description:
   D denotes deformed bar, yield strength of the deformed bar is 500MPa;
4. A small deviation for the arrangement of joint bars is allowed in order to avoid mutual interference.
5. Before casting of secondary concrete, surface of primary concrete must be roughed.

COMMENTS OF SHEET 1 ARE APPLICABLE

REFERENCE DRAWINGS

| | |
|---|---|
| UT1-C-010-CVL-DG-42001 | ARRANGEMENT DRAWING OF DIVERSION TUNNEL |

SYMBOL AND LEGEND

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PROJECT TITLE: Upper Trishuli-1 HEP (216MW)

OWNER: NWEDC

OWNER'S ENGINEER: TRACTEBEL ENGIE, jede CONSULT

CONTRACTOR: DOOSAN Doosan Heavy Industries & Construction

DRAWING TITLE: OUTLINE OF DIVERSION TUNNEL INTAKE TOWER

| INDEX | DRAWING NUMBER | SHEET NO. | REV. NO. |
|---|---|---|---|
| A | UT1-C-010-CVL-DG-42008-3 | 3 OF 3 | 0A |

A1 (594 x 841 MM)